CLAIMS

1. A method for growing a single-crystal region of a III-V compound on a surface corresponding to a crystallographic plane of a single-crystal silicon substrate, comprising the steps of:

growing by epitaxy on the substrate a single-crystal germanium layer;

etching in a portion of the thickness of the germanium layer an opening, the bottom of which corresponds to a single surface inclined with respect to said cristallographic plane or to several surfaces inclined with respect to said cristallographic plane; and

growing the single-crystal III-V compound on the bottom of the opening.

2. The method of claim 1, wherein the single-crystal silicon substrate has an orientation and said inclined surface(s) is (are) inclined by an angle of substantially from 5 to 7 degrees with respect to said cristallographic plane.

3. The method of claim 1, wherein the single-crystal silicon substrate has an orientation and the bottom of the opening comprises two surfaces inclined by substantially from 5 to 7 degrees with respect to said cristallographic plane.

4. The method of claim 1, further comprising the step of growing on the single-crystal silicon substrate at least one layer of a silicon and germanium alloy on which the germanium layer is grown.

5. The method of claim 1, further comprising the step of growing an oxide layer on the germanium layer and of etching said oxide layer to form a relief area on said oxide layer, the shape of the surface of said relief area being transferred by etching into the germanium layer.

6. The method of claim 1, wherein the thickness of the germanium layer separating the bottom of the opening and the single-crystal silicon substrate is greater than 300 nanometers.

7. The method of claim 1, wherein the opening has a cross-section surface area of a few tens of square micrometers.

8. The method of claim 1, wherein the III-V compound is gallium arsenide.

9. A device comprising a single-crystal silicon substrate comprising a surface corresponding to a crystallographic plane covered with a single-crystal germanium layer, wherein the germanium layer comprises at least one opening with a depth smaller than the thickness of the germanium layer, the bottom of the opening corresponding to a single surface inclined with respect to said cristallographic plane or to several surfaces inclined with respect to said cristallographic plane, said opening containing a III-V compound.

10. The device of claim 9, wherein an electronic component is formed in the III-V compound.